IASIS HEX CARD

HEX LISTING

HEX	MNEMONIC		HEX	MNEMONIC		HEX	MNEMONIC		HEX	MNEMONIC		HEX	MNEMONIC		HEX	MNEMONIC		HEX	MNEMONIC	
00	NOP		25	DCR	H	4A	MOV	C,D	6F	MOV	L,A	94	SUB	H	B9	CMP	C	DE	SBI	D8
01	LXI	B,D16	26	MVI	H,D8	4B	MOV	C,E	70	MOV	M,B	95	SUB	L	BA	CMP	D	DF	RST	3
02	STAX	B	27	DAA		4C	MOV	C,H	71	MOV	M,C	96	SUB	M	BB	CMP	E	E0	RPO	
03	INX	B	28	---		4D	MOV	C,L	72	MOV	M,D	97	SUB	A	BC	CMP	H	E1	POP	H
04	INR	B	29	DAD	H	4E	MOV	C,M	73	MOV	M,E	98	SBB	B	BD	CMP	L	E2	JPO	Adr
05	DCR	B	2A	LHLD	Adr	4F	MOV	C,A	74	MOV	M,H	99	SBB	C	BE	CMP	M	E3	XTHL	
06	MVI	B,D8	2B	DCX	H	50	MOV	D,B	75	MOV	M,L	9A	SBB	D	BF	CMP	A	E4	CPO	Adr
07	RLC		2C	INR	L	51	MOV	D,C	76	HLT		9B	SBB	E	C0	RNZ		E5	PUSH	H
08	---		2D	DCR	L	52	MOV	D,D	77	MOV	M,A	9C	SBB	H	C1	POP	B	E6	ANI	D8
09	DAD	B	2E	MVI	L,D8	53	MOV	D,E	78	MOV	A,B	9D	SBB	L	C2	JNZ	Adr	E7	RST	4
0A	LDAX	B	2F	CMA		54	MOV	D,H	79	MOV	A,C	9E	SBB	M	C3	JMP	Adr	E8	RPE	
0B	DCX	B	30	---		55	MOV	D,L	7A	MOV	A,D	9F	SBB	A	C4	CNZ	Adr	E9	PCHL	
0C	INR	C	31	LXI	SP,D16	56	MOV	D,M	7B	MOV	A,E	A0	ANA	B	C5	PUSH	B	EA	JPE	Adr
0D	DCR	C	32	STA	Adr	57	MOV	D,A	7C	MOV	A,H	A1	ANA	C	C6	ADI	D8	EB	XCHG	
0E	MVI	C,D8	33	INX	SP	58	MOV	E,B	7D	MOV	A,L	A2	ANA	D	C7	RST	0	EC	CPE	Adr
0F	RRC		34	INR	M	59	MOV	E,C	7E	MOV	A,M	A3	ANA	E	C8	RZ		ED	---	
10	---		35	DCR	M	5A	MOV	E,D	7F	MOV	A,A	A4	ANA	H	C9	RET	Adr	EE	XRI	D8
11	LXI	D,D16	36	MVI	M,D8	5B	MOV	E,E	80	ADD	B	A5	ANA	L	CA	JZ		EF	RST	5
12	STAX	D	37	STC		5C	MOV	E,H	81	ADD	C	A6	ANA	M	CB	---		F0	RP	
13	INX	D	38	---		5D	MOV	E,L	82	ADD	D	A7	ANA	A	CC	CZ	Adr	F1	POP	PSW
14	INR	D	39	DAD	SP	5E	MOV	E,M	83	ADD	E	A8	XRA	B	CD	CALL	Adr	F2	JP	Adr
15	DCR	D	3A	LDA	Adr	5F	MOV	E,A	84	ADD	H	A9	XRA	C	CE	ACI	D8	F3	DI	
16	MVI	D,D8	3B	DCX	SP	60	MOV	H,B	85	ADD	L	AA	XRA	D	CF	RST	1	F4	CP	Adr
17	RAL		3C	INR	A	61	MOV	H,C	86	ADD	M	AB	XRA	E	D0	RNC		F5	PUSH	PSW
18	---		3D	DCR	A	62	MOV	H,D	87	ADD	A	AC	XRA	H	D1	POP	D	F6	ORI	D8
19	DAD	D	3E	MVI	A,D8	63	MOV	H,E	88	ADC	B	AD	XRA	L	D2	JNC	Adr	F7	RST	6
1A	LDAX	D	3F	CMC		64	MOV	H,H	89	ADC	C	AE	XRA	M	D3	OUT	D8	F8	RM	
1B	DCX	D	40	MOV	B,B	65	MOV	H,L	8A	ADC	D	AF	XRA	A	D4	CNC	Adr	F9	SPHL	
1C	INR	E	41	MOV	B,C	66	MOV	H,M	8B	ADC	E	B0	ORA	B	D5	PUSH	D	FA	JM	Adr
1D	DCR	E	42	MOV	B,D	67	MOV	H,A	8C	ADC	H	B1	ORA	C	D6	SUI	D8	FB	EI	
1E	MVI	E,D8	43	MOV	B,E	68	MOV	L,B	8D	ADC	L	B2	ORA	D	D7	RST	2	FC	CM	Adr
1F	RAR		44	MOV	B,H	69	MOV	L,C	8E	ADC	M	B3	ORA	E	D8	RC		FD	---	
20	---		45	MOV	B,L	6A	MOV	L,D	8F	ADC	A	B4	ORA	H	D9	---		FE	CPI	D8
21	LXI	H,D16	46	MOV	B,M	6B	MOV	L,E	90	SUB	B	B5	ORA	L	DA	JC	Adr	FF	RST	7
22	SHLD	Adr	47	MOV	B,A	6C	MOV	L,H	91	SUB	C	B6	ORA	M	DB	IN	D8			
23	INX	H	48	MOV	C,B	6D	MOV	L,L	92	SUB	D	B7	ORA	A	DC	CC	Adr			
24	INR	H	49	MOV	C,C	6E	MOV	L,M	93	SUB	E	B8	CMP	B	DD	---				

D8 = constant, or logical/arithmetic expression that evaluates to an 8 bit data quantity.

D16 = constant, or logical/arithmetic expression that evaluates to a 16 bit data quantity.

MNEMONIC LISTING

ARITHMETIC/LOGIC INSTRUCTIONS

DIRECT ADDRESS

R→	A	B	C	D	E	H	L	M
ADD R	87	80	81	82	83	84	85	86
ADC R	8F	88	89	8A	8B	8C	8D	8E
SUB R	97	90	91	92	93	94	95	96
SBB R	9F	98	99	9A	9B	9C	9D	9E
ANA R	A7	A0	A1	A2	A3	A4	A5	A6
XRA R	AF	A8	A9	AA	AB	AC	AD	AE
ORA R	B7	B0	B1	B2	B3	B4	B5	B6
CMP R	BF	B8	B9	BA	BB	BC	BD	BE

Example: the Hex Code for ORA D is B2.

Flags affected: carry, zero, sign, parity, aux carry.

REGISTER PAIR

RP→	B	D	H	SP	Flags Affected
INX RP	03	13	23	33	none
DCX RP	0B	1B	2B	3B	none
DAD RP	09	19	29	39	none

Example: the Hex Code for INX SP is 33.

REGISTER

R→	A	B	C	D	E	L	H	M
INR R	3C	04	0C	14	1C	2C	24	34
DCR R	3D	05	0D	15	1D	2D	25	35

Flags affected: zero, sign, parity, aux carry.
Example: the Hex Code for DCR L is 2D.

IMMEDIATE

ADI	D8	C6
ACI	D8	CE
SUI	D8	D6
SBI	D8	DE
ANI	D8	E6
XRI	D8	EE
ORI	D8	F6
CPI	D8	FE

Flags Affected: carry, zero, sign, parity, aux carry. Example: The Hex Code for ORI is F6. To be complete, the code must be followed by data. Thus F6 0F causes the data word 0FH to be OR'd with the accumulator.

ACCUMULATOR

Flags affected

RLC	07	only
RRC	0F	carry
RAL	17	carry
RAR	1F	carry
STC	37	carry
CMC	3F	carry
CMA	2F	none
DAA	27	all

Example: The Hex Code for STC is 37.

INPUT/OUPUT

IN	A8	DB
OUT	A8	D3

Flags affected: none. Example: the Hex Code for OUT is D3. To be complete, this code must be followed by an 8-bit address. Thus D3 FF will send the contents of the accumulator to ouput port no. FF.

TRANSFER OF CONTROL INSTRUCTIONS

JUMP

JMP	A16	C3
JNZ	A16	C2
JZ	A16	CA
JNC	A16	D2
JC	A16	DA
JPO	A16	E2
JPE	A16	EA
JP	A16	F2
JM	A16	FA
PCHL		E9

Flags affected: none. Example: the Hex Code for JZ is CA. To be complete, the code must be followed by an address. Thus CA 00 80 causes a jump, if zero, to location 8000H.

CALL

CALL	A16	CD
CNZ	A16	C4
CZ	A16	CC
CNC	A16	D4
CC	A16	DC
CPO	A16	E4
CPE	A16	EC
CP	A16	F4
CM	A16	FC

Flags affected: none. Example: the Hex Code for CNC is D4. To be complete, the code must be followed by an address. Thus D4 79 81 causes a call, if no carry, to location 8179H.

RETURN

RET	C9
RNZ	C0
RZ	C8
RNC	D0
RC	D8
RPO	E0
RPE	E8
RP	F0
RM	F8

Flags affected: none. Example: the Hex Code for RC is D8.

DATA TRANSFER

DIRECT

LDA	A16	3A
STA	A16	32

Flags affected: none. Example: the Hex Code for STA is 32. To be complete, these instructions must be followed by an address. Thus 32 38 00 causes the contents of the accumulator into location 0038H.

INDIRECT

register pair→	B	D
LDAX	0A	1A
STAX	02	12

Flags affected: none. Example: the Hex Code for STAX D is 12.

IMMEDIATE

destination	A	B	C	D	E	H	L	M
MVI R,D8	3E	06	0E	16	1E	26	2E	36

Flags affected: none. Example: The Hex Code for MVI L is 2E. To be complete, these instructions must be followed by data. Thus 2E FF causes the L register to be loaded with FFH.

REGISTER PAIR

register pair→	B	D	H	SP
LXI RP	01	11	21	31
XCHG	EB			
XTHL	E3			
SPHL	F9			
PCHL	E9			
SHLD A16	22			
LHLD A16	2A			

Flags Affected: none. Example: the Hex Code for XTHL is E3.

MOV—DIRECT REGISTER TO REGISTER

destination→	A	B	C	D	E	H	L	M
source A	7F	47	4F	57	5F	67	6F	77
B	78	40	48	50	58	60	68	70
C	79	41	49	51	59	61	69	71
D	7A	42	4A	52	5A	62	6A	72
E	7B	43	4B	53	5B	63	6B	73
H	7C	44	4C	54	5C	64	6C	74
L	7D	45	4D	55	5D	65	6D	75
M	7E	46	4E	56	5E	66	6E	

Example: The code for MOV A, H is 7C. Flags Affected: none.

CONTROL INSTRUCTIONS

RESTART

RST 0	C7
RST 1	CF
RST 2	D7
RST 3	DF
RST 4	E7
RST 5	EF
RST 6	F7
RST 7	FF

Flags Affected: none. Example: the Hex Code for RST 5 is EF.

CONTROL

NOP	00
HLT	76
DI	F3
EI	FB

Flags affected: none. Example: the Hex Code for NOP is 00.

STACK OPERATIONS

register pair→	B	D	H	PSW
PUSH RP	C5	D5	E5	F5
POP RP	C1	D1	E1	F1
SPHL	F9			
XTHL	E3			

FLAG BYTE

carry
parity
aux carry
zero
sign

KEY-BD-DSP	80F2H	MODE-CHECK
CONVERT	8132H	HIGH-LOW

814EH	DISPLAY-BLANK	80CCH	DISPLAYS TO ACCUM	808CH	D/E TO DISPLAY	80DEH
83A1H	DISPLAY-ACCUM	809AH	SHIFT + ENTER	807CH	DISPLAYS TO D/E	80BCH